

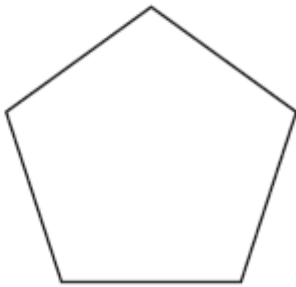
# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

## Overall Expectation #1:

- Classify and construct polygons and angles

Spring 2006

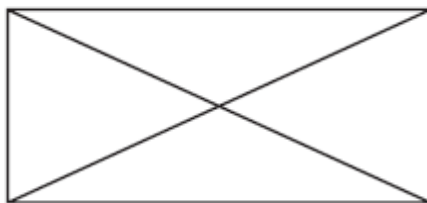
- 14** The regular pentagon shown below has  $72^\circ$  rotational symmetry.



How many  $72^\circ$  rotations will it take to return the vertices to their original positions?

- a 1
- b 2
- c 4
- d 5 \*

- 24** A drawing of the back of an envelope is shown below.



Which statement best describes the back of the envelope?

- a eight isosceles triangles
- b four equilateral triangles
- c a rectangle with two diagonals \*
- d a parallelogram surrounded by a rectangle

# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

Spring 2007

**13** Which diagram below shows an angle of  $120^\circ$ ?



Diagram 1



Diagram 2



Diagram 3



Diagram 4

- A Diagram 1
- B Diagram 2
- C Diagram 3
- D Diagram 4

## GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

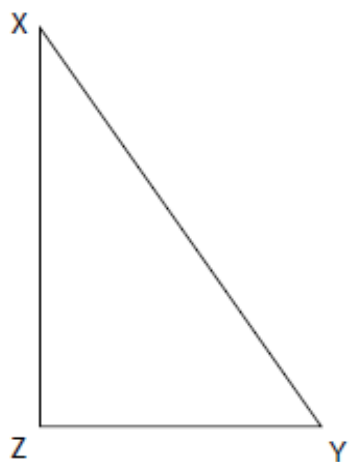
- 9** Using a ruler and protractor, draw a **right** trapezoid with a side measure of 5 cm. Measure and label all angles.

Show your work.

# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

Spring 2008

- 17** Which is closest to the measure of angle X in  $\triangle XYZ$ ? Use a protractor.



- a  $35^\circ$
- b  $55^\circ$
- c  $90^\circ$
- d  $145^\circ$

## GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

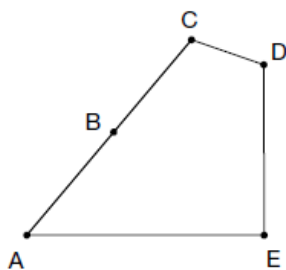
- 30** Using a protractor and a ruler, construct a parallelogram with an angle measure of  $115^\circ$  and sides with lengths of 7 cm and 6 cm. Mark on the parallelogram the length of each side and the measure of all angles.

Show your work.

# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

Spring 2009

- 17** Points A, B and C lie on a line in the polygon shown below.



Which table best classifies the angles of the polygon?

a

Angle	Type
A	Obtuse
B	Straight
C	Acute
D	Acute
E	Right

b

Angle	Type
A	Acute
B	Right
C	Obtuse
D	Obtuse
E	Straight

c

Angle	Type
A	Acute
B	Straight
C	Obtuse
D	Right
E	Right

d

Angle	Type
A	Acute
B	Straight
C	Obtuse
D	Obtuse
E	Right

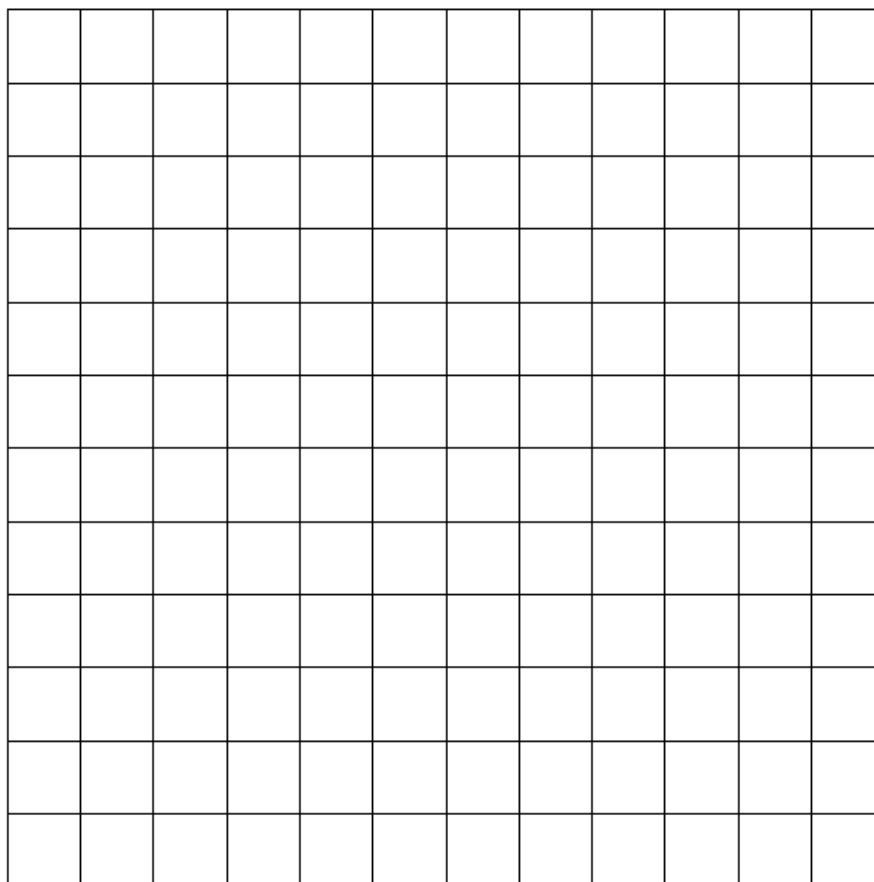
- 18** A regular polygon is created with angles of  $60^\circ$  and sides of 4 cm in length. Which statement below describes this polygon?

- a triangle with perimeter of 12 cm
- b triangle with perimeter of 16 cm
- c rhombus with perimeter of 12 cm
- d rhombus with perimeter of 16 cm

# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

**7** Construct a pentagon on the grid below that meets the following conditions.

- exactly 1 line of symmetry
- 2 obtuse angles
- 2 right angles
- 1 acute angle
- at least 1 side with a length of 3 units



Draw the line of symmetry on your pentagon.

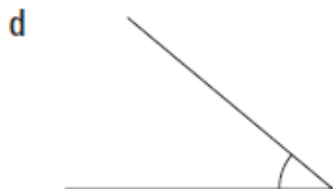
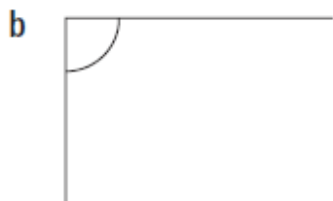
# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

## Spring 2010

**17** A polygon has 4 sides. Two of the sides are parallel and two are not. What shape is the polygon?

- a square
- b rhombus
- c trapezoid
- d parallelogram

**18** Which angle appears to measure  $140^\circ$ ?



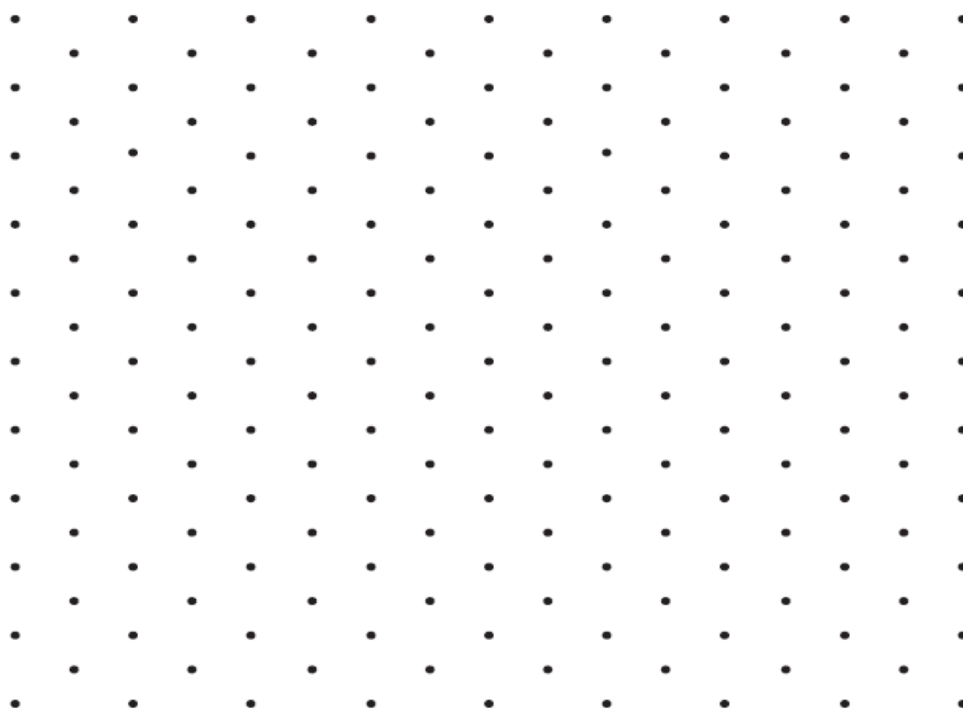
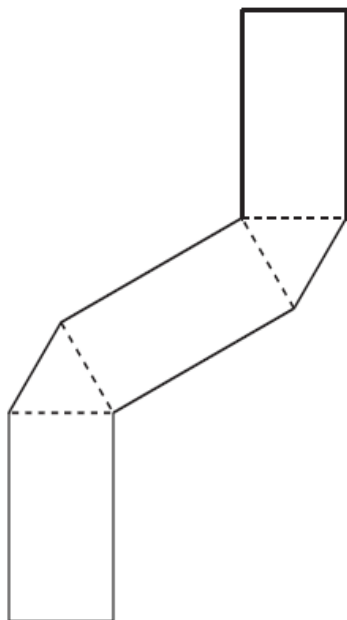
# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

## Overall Expectation #2:

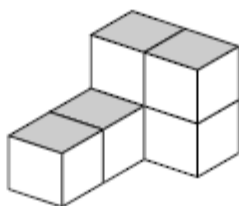
- Sketch three-dimensional figures, and construct three-dimensional figures from drawings

Spring 2006

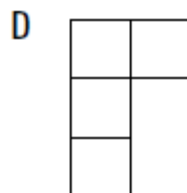
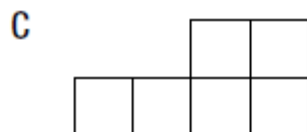
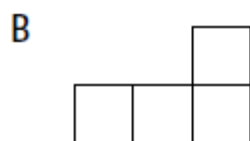
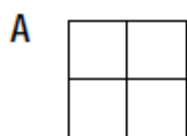
- 9** Draw the three-dimensional figure that will be created when the following net is folded. Show all vertices and edges.



- 21** The following structure is built with 6 identical cubes.



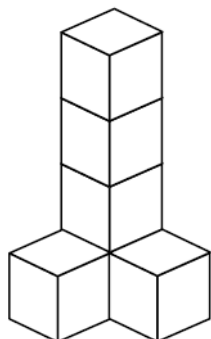
Which of the following views is **not** possible for this structure?



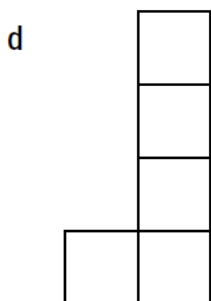
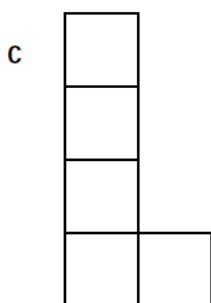
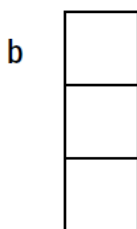
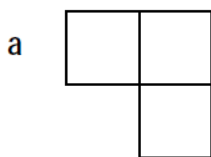
# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

## Spring 2008

- 18** The three-dimensional figure below has been built using cubes.



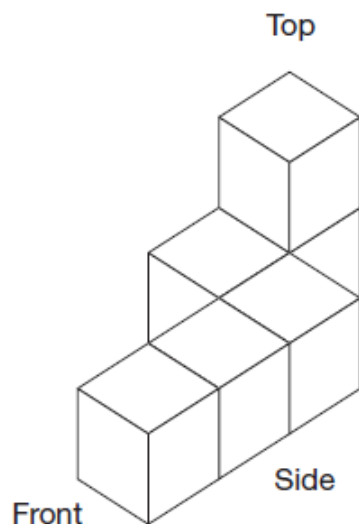
What is a top view of this figure?



# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

## Spring 2010

- 7** Sydney makes the figure below with 6 linking cubes.



Draw a top, a front and a side view of Sydney's figure on the grid below.

Top View						Front View						Side View					

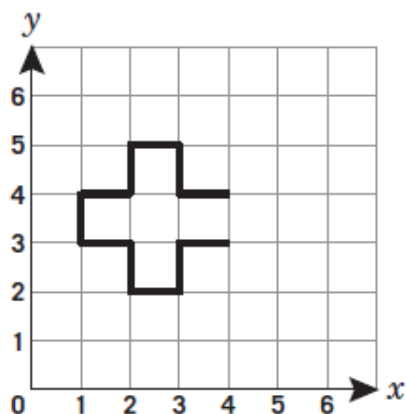
# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

## Overall Expectation #3:

- Describe location in the first quadrant of a coordinate system, and rotate two-dimensional shapes

Spring 2006

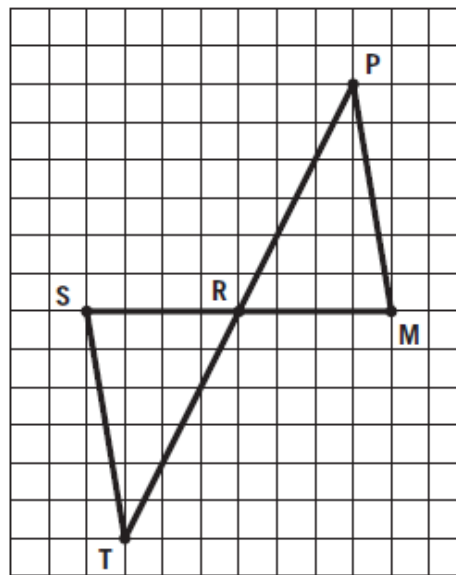
- 3** Jacob draws most of an addition symbol on the Cartesian plane below.



Which two ordered pairs represent the location on the grid of the two points that should be connected to complete the addition symbol?

- a (3, 4) and (4, 4)
- b (4, 3) and (3, 3)
- c (3, 4) and (4, 3)
- d (4, 4) and (4, 3) \*

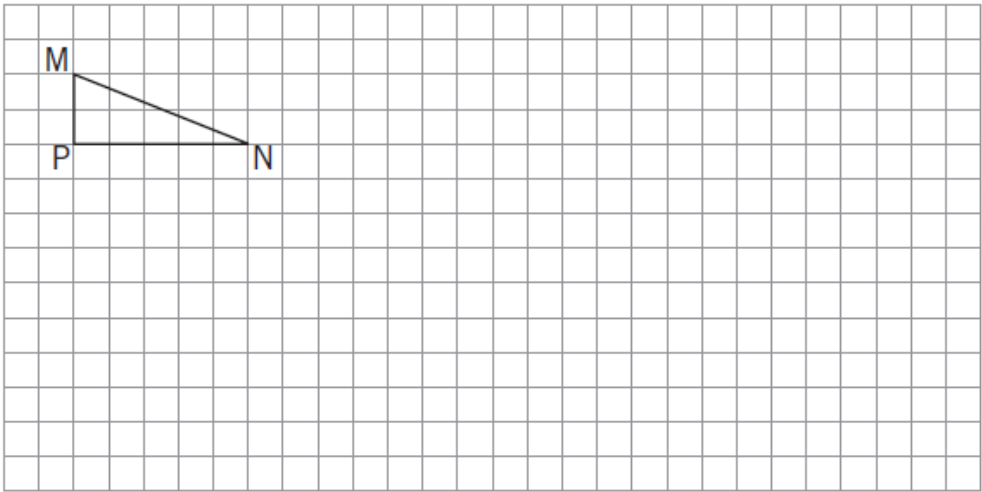
- 23** Which answer best describes the transformation from  $\triangle MPR$  to  $\triangle RST$ ?



- a Reflect about Point R.
- b Rotate  $\frac{1}{4}$  turn clockwise about Point M.
- c Reflect about  $\overline{RM}$ .
- d Rotate  $\frac{1}{2}$  turn about Point R. \*

# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

**30** Use two transformations of different types to move the triangle on the grid below to a new position. Show both transformations and label M, N and P on the new figure.

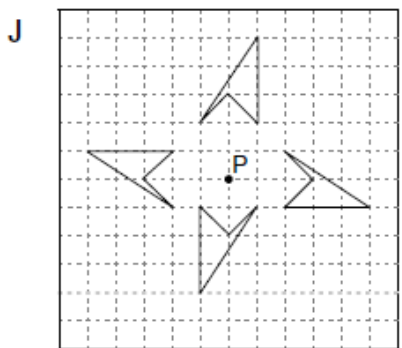
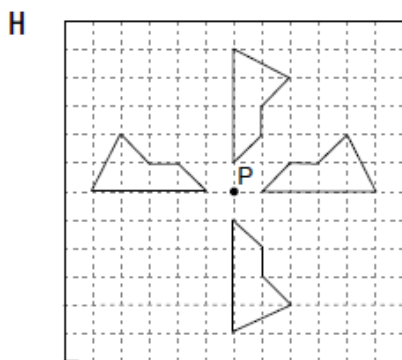
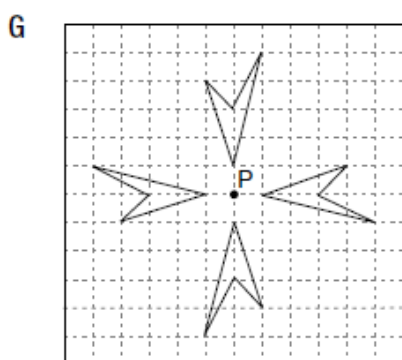
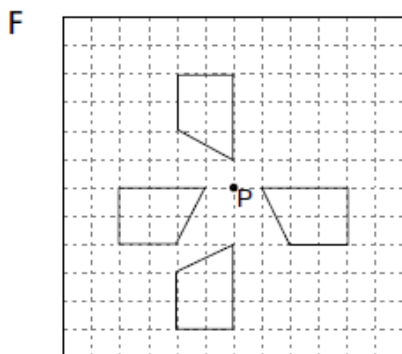


Explain your two transformations, using the correct name for each transformation.

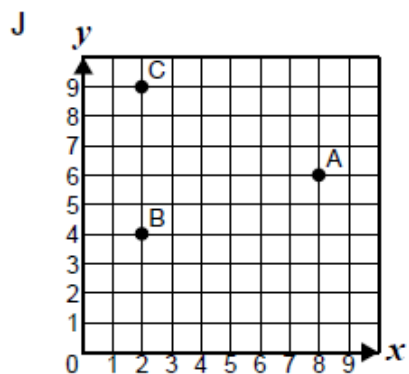
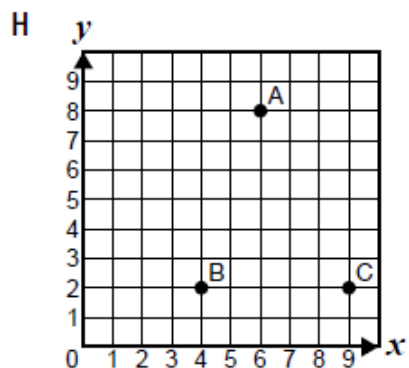
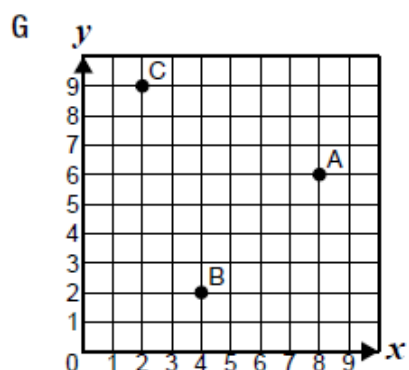
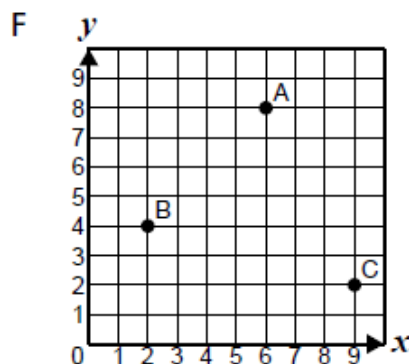
# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

Spring 2007

- 14** Which drawing has 4 shapes showing 3 clockwise rotations of  $90^\circ$  about point P?

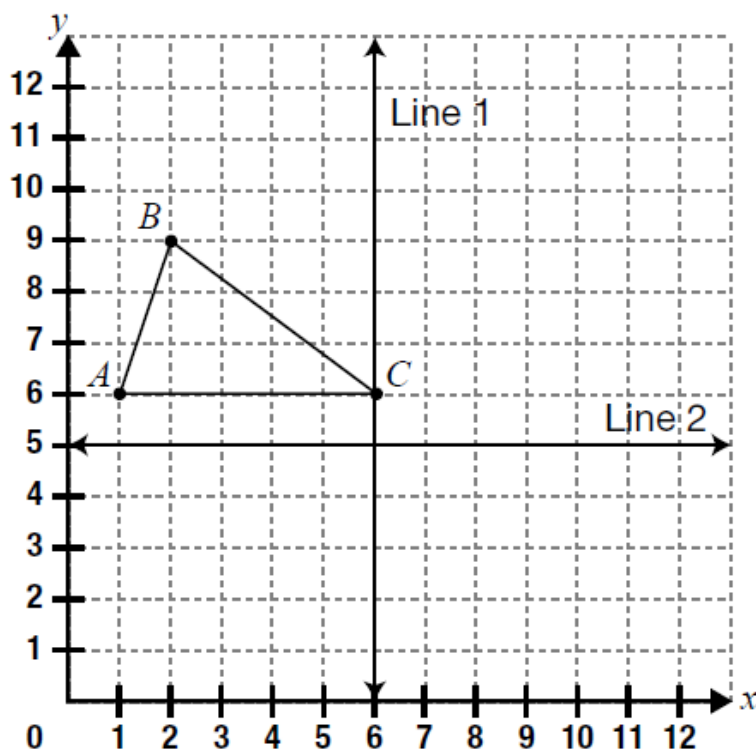


- 20** Which of the following grids shows the correct plotting of the points A(6, 8), B(4, 2) and C(9, 2)?



# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

- 30 The drawing below shows a grid with  $\triangle ABC$ , Line 1 and Line 2. On the grid, reflect  $\triangle ABC$  across Line 1 and then reflect the new triangle across Line 2.

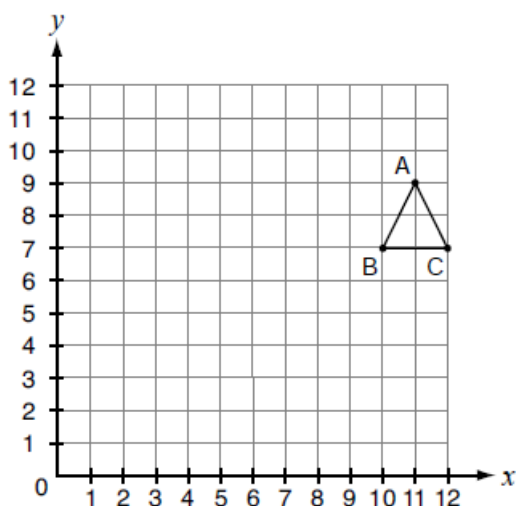


Describe a rotation that would have the same result as these two reflections.

# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

Spring 2008

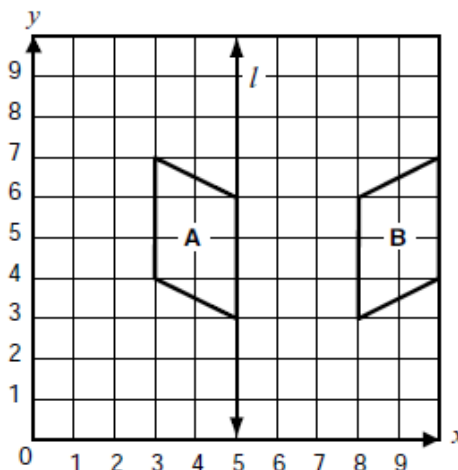
**16** Triangle ABC is graphed on the grid below.



Triangle ABC is translated 3 units to the left and 4 units down. What are the new coordinates of Point C?

- a (3, 9)
- b (7, 3)
- c (8, 5)
- d (9, 3)

**26** Look at the figures below.



Which of the following describes how Parallelogram A was moved to create Parallelogram B?

- a a reflection over line  $l$
- b a translation 3 units to the right
- c a translation 3 units to the left, then a reflection over line  $l$
- d a translation 3 units to the right, then a reflection over line  $l$

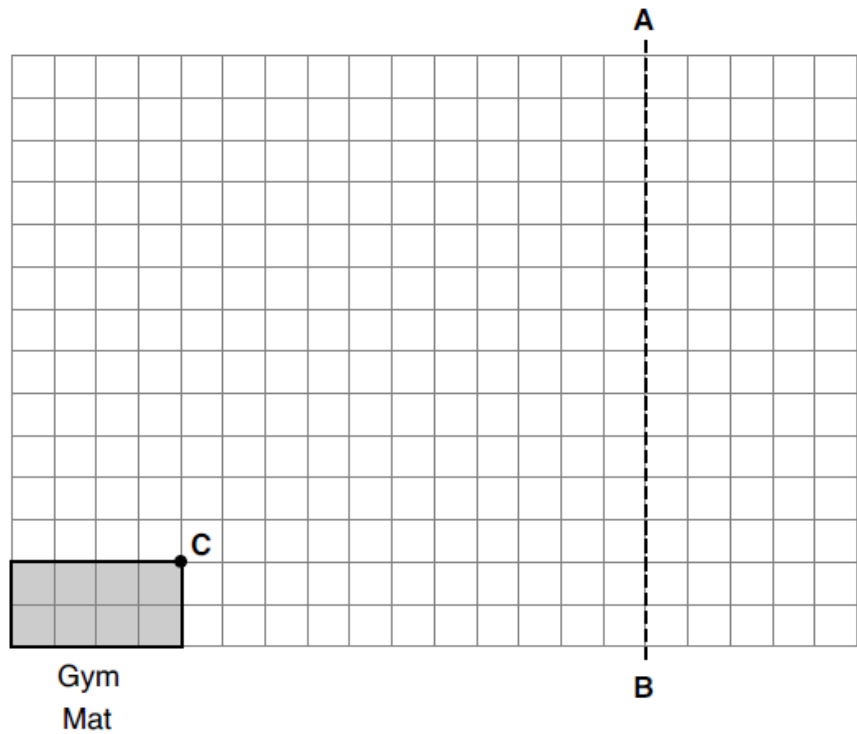
# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

**7** Mr. Lee moves a gym mat using the following four transformations.

1. Rotate the gym mat  $90^\circ$  clockwise about Point C.
2. Translate the gym mat 8 units to the right.
3. Translate the gym mat 6 units up.
4. Reflect the gym mat over line AB.

On the grid below, show the new location of the gym mat after Mr. Lee makes the four transformations.

Show all your work.



# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

Spring 2009

**16** Look at the ladybug below.



The ladybug is rotated three times in the following order.

- $90^\circ$  counter-clockwise
- $180^\circ$  clockwise
- $180^\circ$  clockwise

Which of the following best illustrates the ladybug's position after the three rotations?

a



b



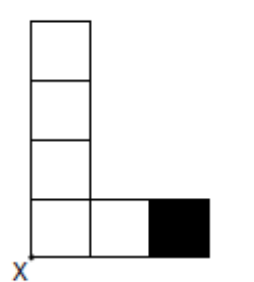
c



d

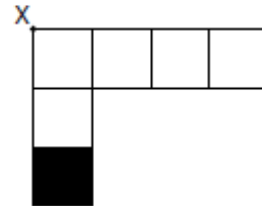


**26** The shape below is reflected across the dotted line and then rotated  $90^\circ$  clockwise about point X.

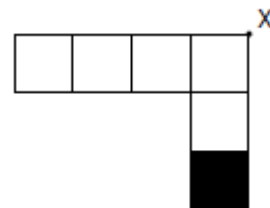


Which of the following shows the shape after the two transformations?

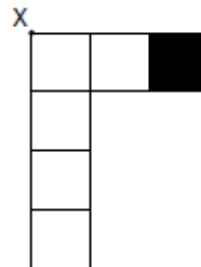
a



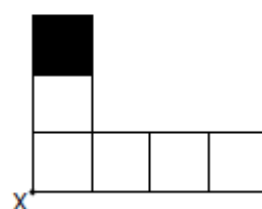
b



c



d



## GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

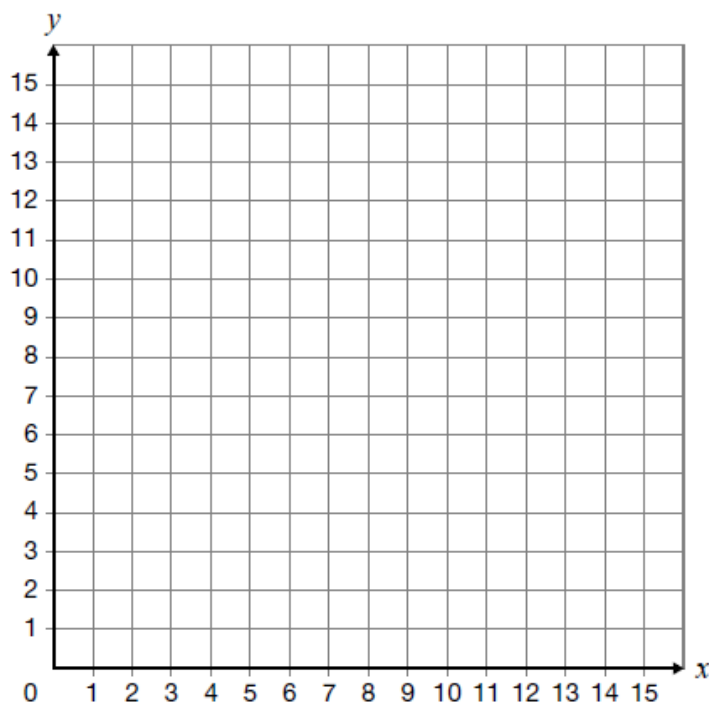
**30** Plot and label the following points to form parallelogram PQRS on the grid below.

P (9, 12)

Q (9, 8)

R (7, 6)

S (7, 10)

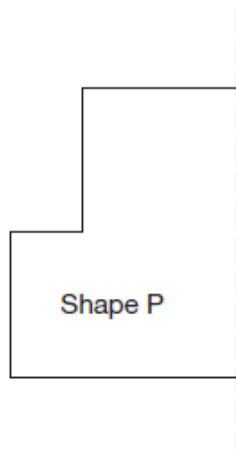


Rotate parallelogram PQRS  $90^\circ$  counter-clockwise about point R. Draw the new parallelogram on the grid above.

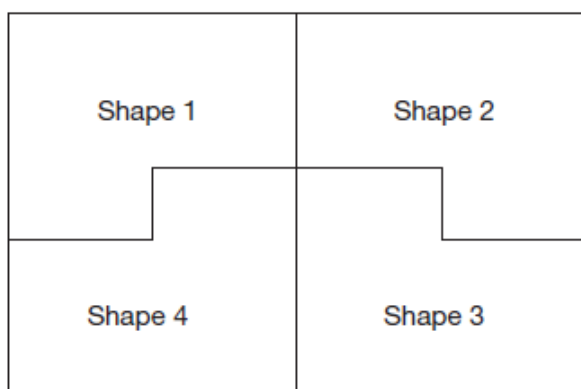
# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

Spring 2010

- 6** Shape P is reflected across the dotted line and then rotated  $90^\circ$  clockwise.

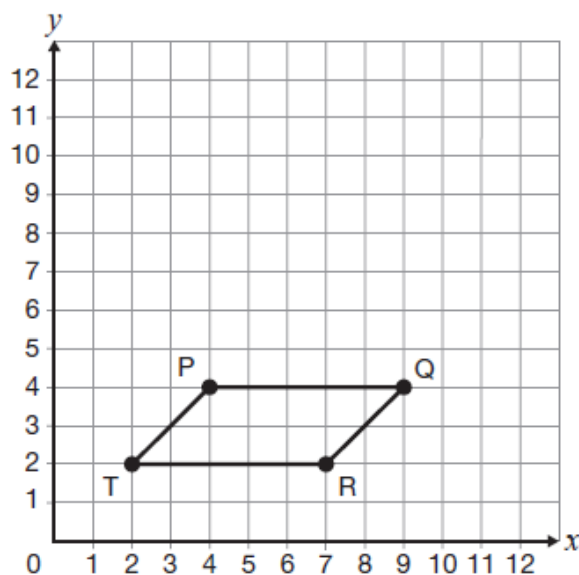


Which shape in the diagram below is an image of Shape P after these two transformations?



- a Shape 1
- b Shape 2
- c Shape 3
- d Shape 4

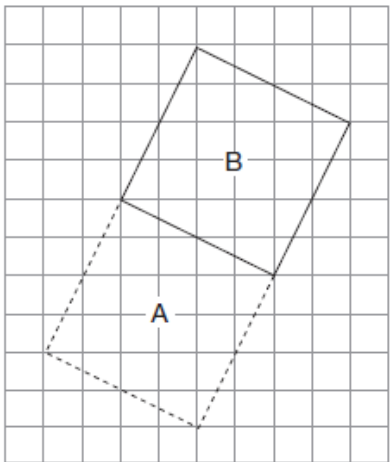
- 16** Polygon PQRT is rotated  $90^\circ$  clockwise about Point Q. What are the new coordinates of Point R after this rotation?



- a (6, 7)
- b (7, 6)
- c (11, 2)
- d (11, 6)

# GRADE SIX EQAO QUESTIONS: Geometry and Spatial Sense

**29** The diagram below shows a square that was moved by a transformation from position A to position B.



Describe three different ways to move the square from position A to position B. Each way should use a different type of transformation. Remember to include the mirror lines or the centre of rotation on the grid.

Complete the following chart.

Type of Transformation	Description